REMARKS

Claims 1-3 and 5-10 are pending in the application.

Rejection - 35 U.S.C. § 102

The Examiner rejected claims 1-3 and 5-10 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,808,979 (Ishibashi *et al.*) Applicants traverse the rejection.

Ishibashi et al. is directed to generating a tracking signal based on the time change in the intensity distribution of a laser beam diffracted by the data pits on an optical disk (Abstract). Ishibashi et al. states that the problem that the prior art fails to address is that of the tracking error signal detection noise increasing as the data recording density increases coupled with the amplitude of the reproduce signal tending to decrease, particularly when a continuous mark series is recorded near a short mark series. Consequently, according to Ishibashi et al., it becomes difficult to separate the short and long marks in the reproduce signal (col. 1. lines 51-66). Based on the foregoing, Ishibashi et al. states that the object of his invention is to 'prevent the loss of short mark reproduction components and to improve the signal to noise ratio of the tracking error signal by providing discrete boost filters of the phase lead/lag type ....by increasing the detection gain of the short mark reproduction signal relative to the detection gain of the long mark reproduction signal". (See col. 2, lines 11-21). As discussed below, the frequency components of the short mark series are at the higher frequencies. Accordingly, as shown in Fig. 2B, the boost filters referred to by Ishibashi et al. increase the amplitude of the frequency components at the highest frequencies.

The present invention is also directed generating a tracking error signal for an optical disk where the data recording density increases. However, the inventors of the present invention have come to the conclusion that the signal generated by the short marks is too bad in quality to produce an accurate tracking signal and when detected are no different than noise [see paragraphs [0011] and [0012]. Accordingly, the present invention takes the opposite approach to Ishibashi et al. for generating an improved tracking signal by filtering out (attenuating) the frequency components of the shortest marks in the reproduce signal.

In rejecting claim 1, the Examiner states that Ishibashi et al. discloses first and second filters (4a, 6a; 4b, 6b) that respectively attenuate the frequency component of the respective first and second read signals that is determined by the minimum length of the marks which are formed on the track. Applicants respectfully submit that the Examiner has misconstrued the teachings of Ishibashi et al.

A pulse-like signal, such as the pulse-like read signal generated by marks of varying widths formed on an optical disk, generates a frequency spectrum such as that shown in Fig. 4 of the application. One skilled in the art would understand that where the marks are discrete in (time) width, the frequency of the individual components in the frequency distribution are also discrete. Further, the frequency component corresponding to the narrowest width mark has the highest frequency.

As described at col. 3, lines 53-55 and col. 4, lines 30-34 and Figs. 2A and 2B, filters 4a,b are high pass filters which remove the DC component from the read signals. The filters 4a, b have a cutoff frequency f4 at which the increasing frequency response flattens. The frequency f4 is lower than the signal frequency band. Thus filters 4a,b do not attenuate any signals in the signal frequency band of the read signals.

Filters 5a,b and 6a, 6b, as described at col. 4, lines 1-9 and shown in Fig. 2A and 2B, are the boost filters referred to at col. 2, lines 11-21 which provide increasing detection gain of the short mark reproduction signals. Consequently, in contrast to the claimed invention, the filters 5a, b and 6a,b increase the amplitude of the higher frequencies and do not attenuate the frequency components of the minimum length marks.

Additionally, at col. 10, lines 30-41, Ishibashi et al. teaches that his invention amplifies the shortest mark lengths by providing a first high frequency emphasis filter 4a,b and a second high frequency emphasis filter 5a,b, 6a,b. In contrast, claim 1 recites attenuating the frequency component of the minimum length marks.

Applicants submit that Ishibashi et al. teaches a different approach for generating a tracking signal than the present invention by amplifying the higher frequencies in the read

signals and does not teach, suggest or disclose providing a filter that attenuates the frequency component of the minimum length mark as recited in claim 1. Accordingly, Applicants respectfully request reconsideration and withdrawal of the §102 rejection to claim 1.

Claims 8-10 are allowable for the same reasons that claim 1 is allowable.

Claims 2-3 and 6-7 are allowable at least by their dependency on allowable claim 1.

Conclusion

Insofar as the Examiner's rejections were fully addressed, the instant application is in condition for allowance. A Notice of Allowability of all pending claims is therefore earnestly solicited.

Respectfully submitted,

Kenji Kondo *et al.*

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(Date)

LOUIS SICKLES, II
Registration No. 45,803
PANITCH SCHWARZE BELISARIO & NADEL LLP
One Commerce Square
2005 Market Street, Suite 2200
Philadelphia, PA 19103-7013
Telephone: 215-965-1330
Direct Dial: 215-965-1294
Facsimile: 215-965-1331
E-Mail: lsickles@panitchlaw.com

LS:msm